

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of the claims in the application:

LISTING OF CLAIMS:

Claim 1 (currently amended): A preparation comprising a cell extract for cell-free protein synthesis prepared by substantially excluding ~~an~~ any endosperm portion of said cell extract, thereby substantially excluding ~~the~~ systems involved in inhibiting the cell extract's protein synthesis reactions.

Claim 2 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to Claim 1, wherein substantially excluding said systems involved in inhibiting the cell extract's protein synthesis reactions comprises treating said cell extract with a nonionic surfactant.

Claim 3 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to Claim 2, wherein the cell extract is further treated by using an acoustic wave in addition to said surfactant.

Claim 4 (currently amended): A preparation which contains cell extract for cell-free protein synthesis according to Claim 1, wherein the ~~inhibiting~~ excluding of said systems involved in inhibiting the cell extract's protein synthesis reactions serves to control deactivation of ribosomes present in said cell extract.

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

Claim 5 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to Claim 1, wherein a substance is present which controls deadenylation of ribosomes characterized by excluding systems involving the inhibition of protein synthesis.

Claim 6 (currently amended): A preparation which contains cell extract for cell-free protein synthesis according to Claim 1, wherein the cell extract is from an embryo and said embryo is treated by adding nonionic surfactant and a substance controlling deadenylation of ribosome by excluding systems involving the inhibition of protein ~~synthesis~~ synthesis.

Claim 7 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 1, wherein said preparation can be stored in room temperature and which maintains biological functions of said cell extract.

Claim 8 (previously presented): A preparation containing cell extract for cell-free protein synthesis according to Claim 7, wherein the preparation is in dried form.

Claim 9 (previously presented): A preparation containing cell extract for cell-free protein synthesis according to Claim 8, wherein the preparation is formulated by freeze-drying.

Claim 10 (currently amended): A method for cell-free protein synthesis in a system which is capable of recovering the synthesized product protein, said method comprising the steps of

providing a reaction vessel containing raw material substances that participate in cell-free protein synthesis, the raw material substances including ~~utilizing~~ the preparation of claim 1,

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

~~containing cell extract for cell free protein synthesis, wherein a the reaction vessel used in the system is prepared with~~ includes a carrier capable of molecular sieving, and

carrying out cell-free protein synthesis to obtain a synthesized product protein, during which synthesis a material substance pertaining to the system is developed with the carrier as a moving phase, ~~and during the development the reaction of cell free protein synthesis is carried out, thereby obtaining the product.~~

Claim 11 (currently amended): A method for cell-free protein synthesis in a system which is capable of recovering the synthesized product protein, said method comprising the steps of

providing a reaction vessel containing raw material substances that participate in cell-free protein synthesis, the raw material substances including the preparation of claim 1, and wherein the reaction vessel ~~utilizing the preparation of claim 1 containing cell extract for cell free protein synthesis, a reaction vessel used in the system is prepared by dialysis, includes a dialysis membrane, and~~

carrying out cell-free protein synthesis, during which synthesis a material substance pertaining to the cell-free protein synthesis system and the synthesized product protein of the cell-free protein synthesis reaction are separated through the dialysis membrane, thereby obtaining the product.

Claim 12 (withdrawn) The means for cell-free protein synthesis according to claim 10, wherein the synthesis is continuous, and implements are selected from addition, storage, exchange

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

and discharge, regarding a factor chosen from at least mRNA, a template for synthesis reaction, enzyme for energy recycling system, substrate, and energy source.

Claim 13 (previously presented): A preparation containing cell-extract for cell-free protein synthesis, comprising an extract of wheat embryo obtained after subjecting a treatment including a process for washing the wheat embryo with nonionic surfactant to completely remove any endosperm contaminants from the wheat embryo, that a deadenylation rate of the wheat extract is 1% or lower, the dry preparation of the wheat embryo extract maintains stability under room temperature; and that in a continuous cell-free protein synthesis involving a replenishment of the substrate and other substances for protein synthesis using said wheat extract, the synthesis shows constant performance even in 24th hour after starting the synthesis and shows at least 1 mg/ml or higher in synthesis level in said 24th hour.

Claim 14 (withdrawn) The means for continuous cell-free protein synthesis according to Claim 12, wherein an apparatus comprises a structure including an impregnation vessel and a lid mounted to hermetically seal the vessel, and supports a channel with inlet to introduce into the apparatus substrate and/or energy source and outlet leading to chamber for outer solution for dialysis in impregnation vessel, a channel with inlet existing in the solution chamber in impregnation vessel as a measure to discharge metabolite, in outer dialysis solution and outlet leading to outside of the apparatus, and inlet to introduce mRNA and/or enzyme for energy recycling system and a medium having a function of dialysis membrane existing in a solution chamber for outer solution for dialysis in the impregnation vessel.

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

Claim 15 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 2, wherein substantially excluding said systems involved in inhibiting the cell extract's protein synthesis reactions serves to control deadenylation of ribosome.

Claim 16 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 3, wherein substantially excluding said systems involved in inhibiting the cell extract's protein synthesis reactions serves to control deadenylation of ribosome.

Claim 17 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 2, wherein said preparation can be stored in room temperature and which maintains biological functions of said cell extract.

Claim 18 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 3, wherein said preparation can be stored in room temperature and which maintains biological functions of said cell extract.

Claim 19 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 1, further comprising a synthesized substrate, amino acid, an energy source, a surfactant, an ionic compound, or combinations thereof wherein said preparation can be stored in room temperature and which maintains biological functions of said cell extract.

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

Claim 20 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 5, wherein said preparation can be stored in room temperature and which maintains biological functions of said cell extract.

Claim 21 (previously presented): A preparation which contains cell extract for cell-free protein synthesis according to claim 6, wherein said preparation can be stored in room temperature and which maintains biological functions of said cell extract.

Claim 22 (withdrawn): The means for cell-free protein synthesis according to claim 11, wherein the synthesis is continuous, and implements are selected from addition, storage, exchange and discharge, regarding a factor chosen from at least mRNA, a template for synthesis reaction, enzyme for energy recycling system, substrate, and energy source.

Claim 23 (currently amended): A method of synthesizing protein comprising the steps of providing raw material substances that participate in cell-free protein synthesis, the raw material substances including using the preparation prepared according to of claim 1, and carrying out cell-free protein synthesis in which the raw material substances participate to produce a synthesized protein.

Claim 24 (currently amended): A method of synthesizing protein comprising the steps of providing raw material substances that participate in cell-free protein synthesis, the raw material substances including using the preparation prepared according to of claim 2, and carrying out cell-free protein synthesis in which the raw material substances participate to

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

produce a synthesized protein.

Claim 25 (currently amended): A method of synthesizing protein comprising the steps of
providing raw material substances that participate in cell-free protein synthesis, the raw
material substances including using the preparation prepared according to of claim 3, and
carrying out cell-free protein synthesis in which the raw material substances participate to
produce a synthesized protein.

Claim 26 (currently amended): A method of synthesizing protein comprising the steps of
providing raw material substances that participate in cell-free protein synthesis, the raw
material substances including using the preparation prepared according to of claim 4, and
carrying out cell-free protein synthesis in which the raw material substances participate to
produce a synthesized protein.

Claim 27 (currently amended): A method of synthesizing protein comprising the steps of
providing raw material substances that participate in cell-free protein synthesis, the raw
material substances including using the preparation prepared according to of claim 5, and
carrying out cell-free protein synthesis in which the raw material substances participate to
produce a synthesized protein.

Claim 28 (currently amended): A method of synthesizing protein comprising the steps of
providing raw material substances that participate in cell-free protein synthesis, the raw
material substances including using the preparation prepared according to of claim 6, and

U.S. Patent Application No. 10/019,995
Amendment dated October 12, 2004
Reply to Office Action of July 26, 2004

carrying out cell-free protein synthesis in which the raw material substances participate to produce a synthesized protein.

Claim 29 (currently amended): A method of synthesizing protein comprising the steps of providing raw material substances that participate in cell-free protein synthesis, the raw material substances including using the preparation prepared according to of claim 13, and carrying out cell-free protein synthesis in which the raw material substances participate to produce a synthesized protein.

Claim 30 (withdrawn): A protein synthesized by the method of claim 23.